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(72) Inventors:

- **MIYASHITA, Tsutomu**
Sabae-shi, Fukui, 916-0017 (JP)
- **TAKAHASHI, Toshinari**
Sabae-shi, Fukui, 916-0017 (JP)

(74) Representative: **Vossius & Partner**
Patentanwälte Rechtsanwälte mbB
Siebertstrasse 3
81675 München (DE)

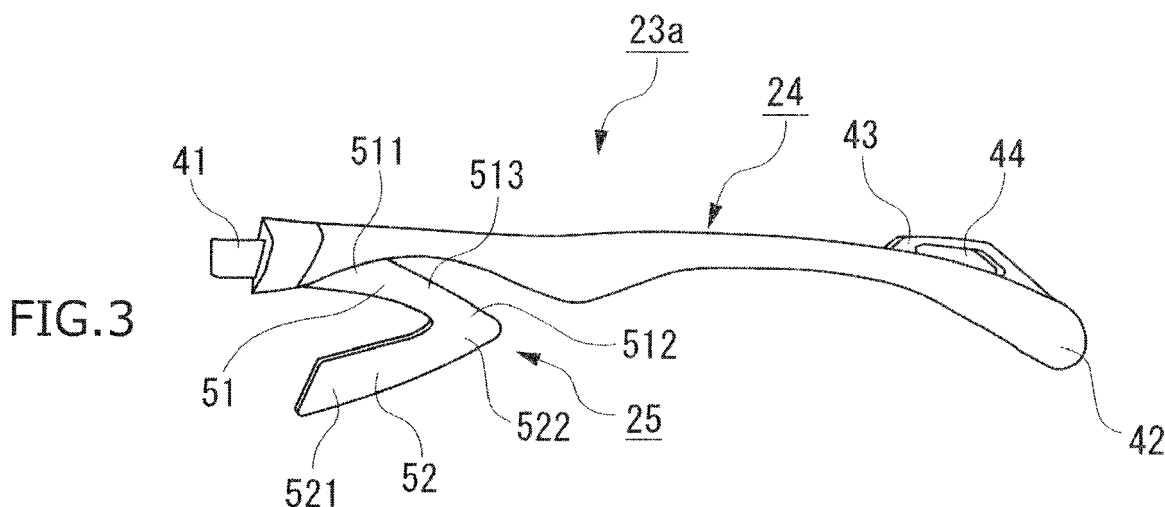
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(71) Applicant: **Zygospec Co., Ltd.**
Sabae-shi, Fukui 916-0017 (JP)

(54) SPECTACLE FRAME AND TEMPLE THEREOF

(57) A temple (23a, 23b) is provided for a spectacle frame (12) without nose pads. The temple (23a, 23b) comprises an elongate body (24), and a supporting part (25). The body (24) has a first end (41) and a second end (42). The first end (41) is configured to be connected to a front (21) without nose pads. The second end (42) is configured to be mounted on a ear (81) of a wearer (80). The supporting part (25) is connected to the body (24),

and configured to be mounted a zygomatic region of the wearer (80). The body (24) has an elongate through hole (44) extending along a longitudinal direction of the body (24) near the second end (42). Levitation of the second end (42) above the ear (81) of the wearer (80) being prevented by penetration of hair (82) of the wearer (80) through the through hole (44).



Description

TECHNICAL FIELD

[0001] The present invention relates to a spectacle frame.

BACKGROUND ART

[0002] JP 1550931 S and JP 1550932 S disclose spectacles with no nose pads. The spectacles have pads provided in the middle of temples. Contact of the pads and the rear end parts of the temples with the temporal regions of a wearer enables to support a front of the spectacles.

SUMMARY OF INVENTION

Technical Problem

[0003] Hard exercise may cause the rear ends of the temples to levitate up. This may result in shift or slip of the spectacles.

Solution to Problem

[0004] A temple is provided for a spectacle frame without nose pads. The temple comprises an elongate body and a supporting part. The body has a first end and a second end. The first end is configured to be connected to a front without nose pads. The second end is configured to be mounted on a ear of a wearer. The supporting part is connected to the body, and configured to be mounted a zygomatic region of the wearer. The body has an elongate through hole extending along a longitudinal direction of the body near the second end. Levitation of the second end above the ear of the wearer being prevented by penetration of hair of the wearer through the through hole.

[0005] The through hole may laterally pierce through the body.

[0006] The second end of the body may have a protrusion extending along the longitudinal direction of the body on an upper side thereof. The through hole may pierce through the protrusion.

[0007] The supporting part may have an elongate mounting part and an elongate connection part. The mounting part may be configured to be mounted on the zygomatic bone of the wearer, and may have a first end and a second end. The connection part may connects the mounting part to the body, and may have a first end and a second end. The first end of the connection part may be connected to the body near the first end of the body. The second end of the connection part may be located backward, downward and inward with respect to the first end of the connection part. The first end of the mounting part may be connected to the second end of the connection part. The second end of the mounting part

may be located forward and downward with respect to the first end of the mounting part.

[0008] The supporting part may be formed by a deformable metal member and a resin covering over the metal member.

[0009] A spectacle frame may be provided. The spectacle frame may comprise a front without nose pads, and the temple connected to the front.

10 Advantageous Effects of the Invention

[0010] The hair penetrating through the through hole increases resistance against a pivoting movement of spectacles. This enables to prevent shift or slip of the spectacles, even when the wearer takes hard exercise.

[0011] The through hole laterally piercing through the body facilitates penetration of the hair through the through hole.

[0012] The through hole piercing through the protrusion provided on the upper side of the body facilitates penetration of the hair through the through hole.

[0013] The supporting part with the above described shape and/or structure facilitates to conform to a head of the wearer.

25 BRIEF DESCRIPTION OF DRAWINGS

[0014]

FIG. 1 shows a perspective view of spectacles; FIGS. 2 and 3 show a plan view and a side view of a temple, respectively; FIGS. 4 and 5 show a side view and a perspective view of a head of a wearer wearing the spectacles, respectively; and FIG. 6 shows a sectional side view of a supporting part.

40 DESCRIPTION OF EMBODIMENT

[0015] Referring FIG. 1, Spectacles 10 are sunglasses. They have a spectacle frame 12, and lenses 11 supported by the spectacle frame 12.

[0016] The lenses 11 are a shading plate without optical correction formed of polycarbonate or other plastics. They have a nose part 111 cut off for avoiding contact with a nose of a wearer.

[0017] The spectacle frame 12 has a front 21 supporting the lenses 11, and temples 23a, 23b connected to ends of the front 21.

[0018] The front 21 has endpieces 22a, 22b. Each of the endpieces 22a, 22b has a base part 221, an upper part 222 extending from an upper end of the base part 221 toward an inner front side, and a lower part 223 extending from a lower end of the base part 221 toward an inner front side. Each of the base part 221, the upper part 222 and the lower part 223 has a groove for fitting with the lenses 11 to secure the lenses 11 with the front 21.

[0019] Referring FIGS. 2 and 3, the temple 23a has a temple body 24, and a supporting part 25 secured to the temple body 24 with a screw or other securing member 26, illustrated in FIGS. 1 and 6. The temple 23b is a mirror image of the temple 23a.

[0020] The temple body 24 has a front end 41 and a rear end 42. The front end 41 is connected to the end-piece 22a of the front 21 with a hinge or other connection member to be allowed to pivot on a generally vertical axis for folding. The rear end 42 is mounted on a ear of the wearer.

[0021] The temple body 24 has an elongate shape curved generally along a temporal region of the wearer. The temple body 24 may be deformable to conform to a shape and/or a size of a head of the wearer. For example, the temple body 24 may have a thin stainless plate or other deformable metal member, and elastomer or other deformable synthetic resin covering the metal member to follow deformation of the metal member.

[0022] The temple body 24 has a protrusion 43 near the rear end 42. The protrusion 43 protrudes upward from an upper face of the temple body 24, and has a elongate plate shape extending along a longitudinal direction of the temple body 24, and a thickness smaller than that of the temple body 24.

[0023] The temple body 24 has a through hole 44 laterally piercing through the protrusion 43. The through hole 44 extends along the longitudinal direction of the temple body 24. The through hole 44 is configured that relatively short hair 82 of the wearer 80 near his ear 81 penetrates through it, as shown in FIGS. 4 and 5.

[0024] The supporting part 25 is configured to be mounted on a zygomatic region of the wearer, to support the spectacle 10. The supporting part 25 has a connection part 51 and a mounting part 52.

[0025] The connection part 51 connects the mounting part 52 to the temple body 24. The connection part 51 has an elongate shape with a front end 511, and a rear end 512. The front end 511 is connected to the temple body 24 near the front end 41.

[0026] A region of the temple body 24 near the front end 41 is apart from the temporal region of the wearer. The connection part 51 extends diagonally toward a lower rear side from the temple body 24, with being curved inward at a curved part 513 to approach the temporal region of the wearer. The curved part 513 is almost directly below the temple body 24, and is backward and downward with respect to the front end 511. The rear end 512 is further backward and downward with respect to the curved part 513, and inward with respect to the temple body 24.

[0027] The mounting part 52 is configured to be mounted on the zygomatic region of the wearer. The mounting part 52 has an elongate shape with a front end 521 and a rear end 522. The rear end 522 is connected to the rear end 512 of the connection part 51. The mounting part 52 extends diagonally toward a lower front side from the rear end 522. The front end 521 is forward and downward

with respect to the rear end 522.

[0028] The mounting part 52 is mounted on skin of the zygomatic region to be supported by a zygomatic bone under the skin. The mounting part 52 may have a rough surface or other structure for slip prevention.

[0029] The supporting part 25 may be deformable to conform to a size of a face and/or a shape of the zygomatic region of the wearer. For example, the supporting part 25 may have a thin titanium plate or other deformable metal member 53, and elastomer or other deformable synthetic resin 54 covering the metal member 53 to follow deformation of the metal member 53, as shown in FIG. 6.

[0030] The diagonal and not vertical extension of the connection part 51 enlarges a length of the connection part 51, and thereby a movable range of the mounting part 52.

[0031] The connection of the mounting part 52 to the connection part 51 at the rear end 522 instead of the front end 521 facilitates adjustment of the position of the mounting part 52 to conform to the shape of the zygomatic region of the wearer.

[0032] The thin plate shape of the metal member 53 facilitates lateral deformation of the supporting part 25. This enables to move the mounting part 52 to conform to the size of the face of the wearer. In contrast, it exerts an elastic force in a vertical direction. This enables to absorb an impact force caused by hard exercise or other to prevent slip of the spectacles 10.

[0033] The distance between the left and right mounting parts 52 may be slightly narrower than the width of the face of the wearer. This enables the left and right mounting parts 52 to nip the face of the wearer, to prevent slip of the spectacles 10. At this time, elastic deformation of the connection parts 51 enables to prevent deformation of the temple body 24 causing the rear ends 42 to be apart from the temporal regions of the wearer.

[0034] The spectacles 10 are supported by the supporting part 25. Since the rear end 42 of the temple body 24 is just mounted on, but not secured to, the ear of the wearer, the spectacles 10 may pivot forward with the left and right mounting parts 52 functioning as fulcrum.

[0035] However, the front ends 521 of the mounting parts 52 is enough forward with respect to a center of gravity of the spectacles 10 to restrain the pivoting movement of the spectacles 10.

[0036] Furthermore, the penetration of the hair of the wearer through the through hole 44 increases resistance against the pivoting movement to prevent levitation of the rear end 42 of the temple body 24 from the ear of the wearer, and thereby the pivoting movement of the spectacles 10, even when the wearer takes hard exercise.

[0037] The above described embodiments are examples to make it easier to understand the present invention. The present invention is not limited to the examples, and includes any modified, altered, added, or removed variations, without departing from the scope of the claims attached herewith. This can be easily understood by persons skilled in the art.

[0038] For example, the lenses are not limited to be without optical correction. They may be with optical correction, and they may be without shading function. The lenses may be separated into left and right parts, and they may be connected by a bridge. The lenses are not limited to be formed of plastics. They may be formed of glass or other material. However, light lenses are preferred, because heavy lenses tend to cause levitation of the rear end of the temple body.

[0039] The front is not limited to be rimless. It may be semi-rimless, or full-rim. As long as it has no nose pads, the front may have any other structure.

REFERENCE SIGNS LIST

[0040] 10: Spectacles; 11: lens; 111: nose part; 12: spectacle frame; 21: front; 22a, 22b: endpiece; 221: base part; 222: upper part; 223: lower part; 23a, 23b: temple; 24: temple body; 25: supporting part; 26: securing member; 41, 511, 521: front end; 42, 512, 522: rear end; 43: protrusion; 44: through hole; 51: connection part; 513: curved part; 52: mounting part; 53: metal member; 54: resin; 80: wearer; 81: ear; 82: hair.

Claims

1. A temple (23a, 23b) for a spectacle frame (12) without nose pads, the temple (23a, 23b) comprising:

an elongate body (24) having a first end (41) and a second end (42), the first end (41) being configured to be connected to a front (21) without nose pads, and the second end (42) being configured to be mounted on a ear (81) of a wearer (80); and
a supporting part (25) connected to the body (24), and configured to be mounted a zygomatic region of the wearer (80),

the body (24) having an elongate through hole (44) extending along a longitudinal direction of the body (24) near the second end (42), and
levitation of the second end (42) above the ear (81) of the wearer (80) being prevented by penetration of hair (82) of the wearer (80) through the through hole (44).

2. The temple (23a, 23b) of Claim 1, wherein the through hole (44) laterally pierces through the body (24).

3. The temple (23a, 23b) of Claim 2, wherein the second end (42) of the body (24) has a protrusion (43) extending along the longitudinal direction of the body (24) on an upper side thereof, and
wherein the through hole (44) pierces through the protrusion (43).

4. The temple (23a, 23b) of anyone of Claims 1 to 3, wherein the supporting part (25) has:

an elongate mounting part (52) configured to be mounted on the zygomatic region of the wearer (80), and having a first end (522) and a second end (521); and
an elongate connection part (51) connecting the mounting part (52) to the body (24), and having a first end (511) and a second end (512),

wherein the first end (511) of the connection part (51) is connected to the body (24) near the first end (41) of the body (24),

wherein the second end (512) of the connection part (51) is located backward, downward and inward with respect to the first end (511) of the connection part (51),

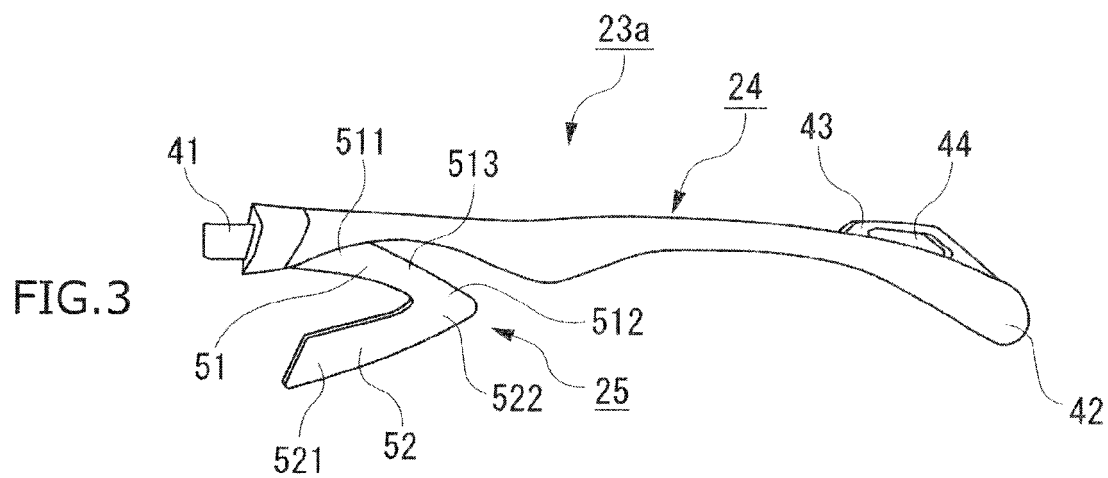
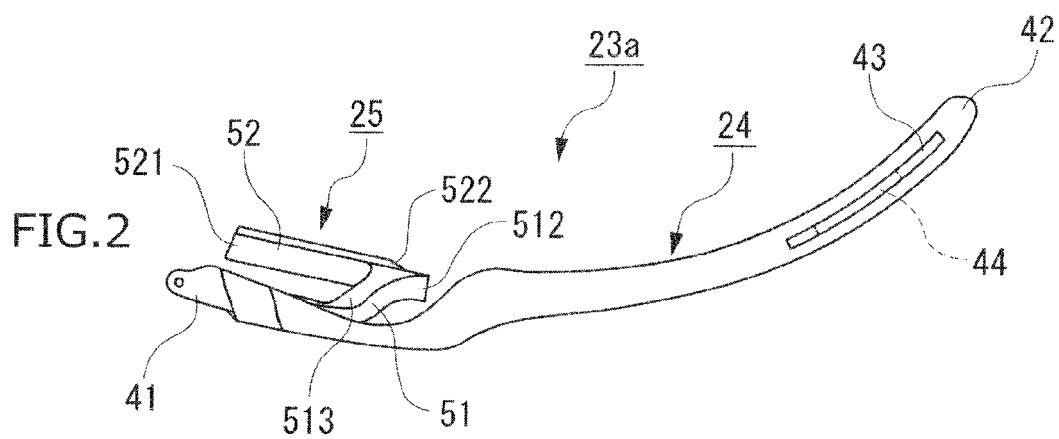
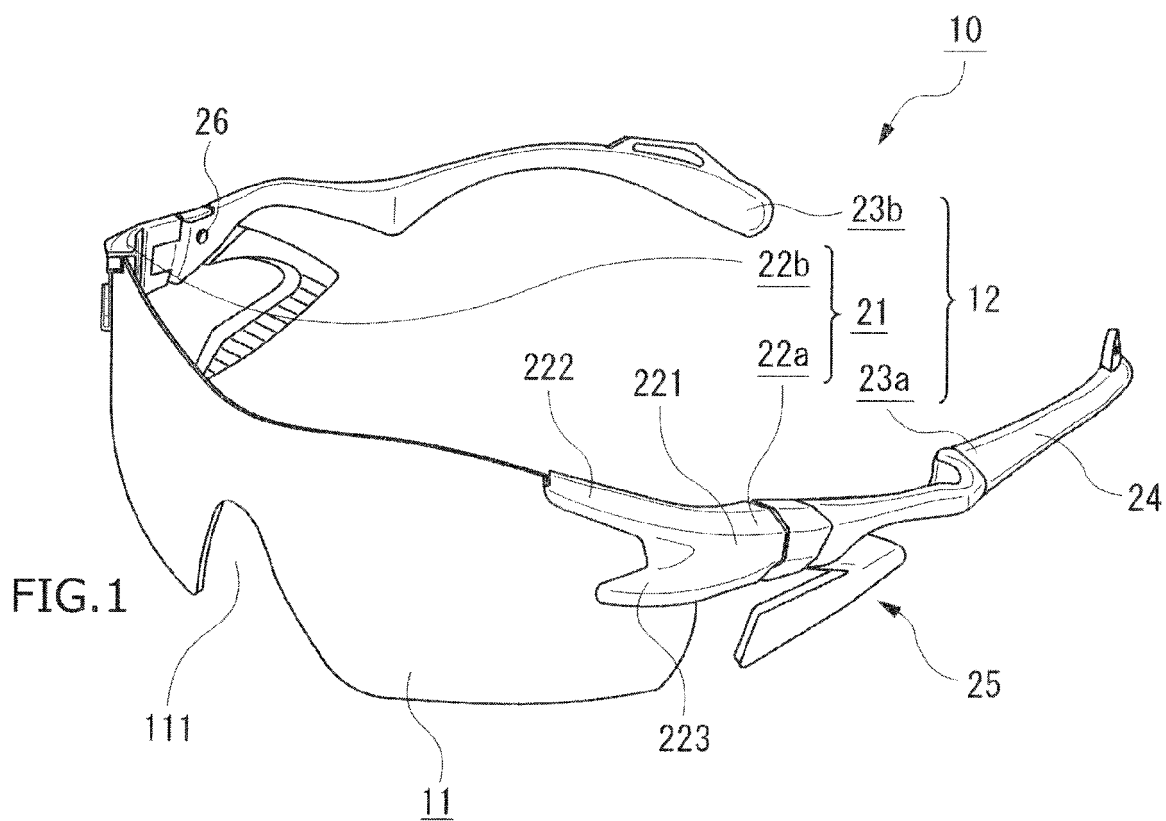
wherein the first end (522) of the mounting part (52) is connected to the second end (512) of the connection part (51), and

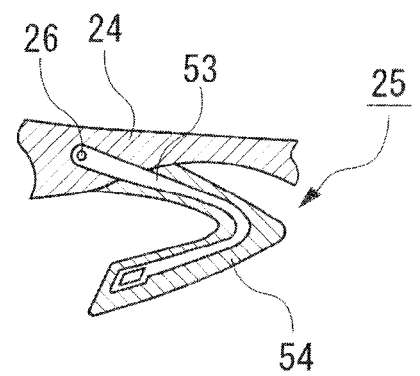
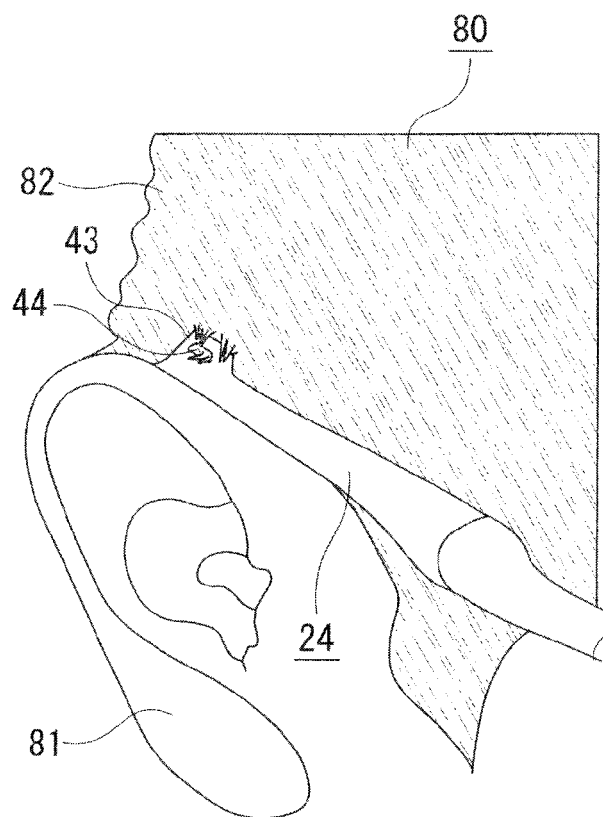
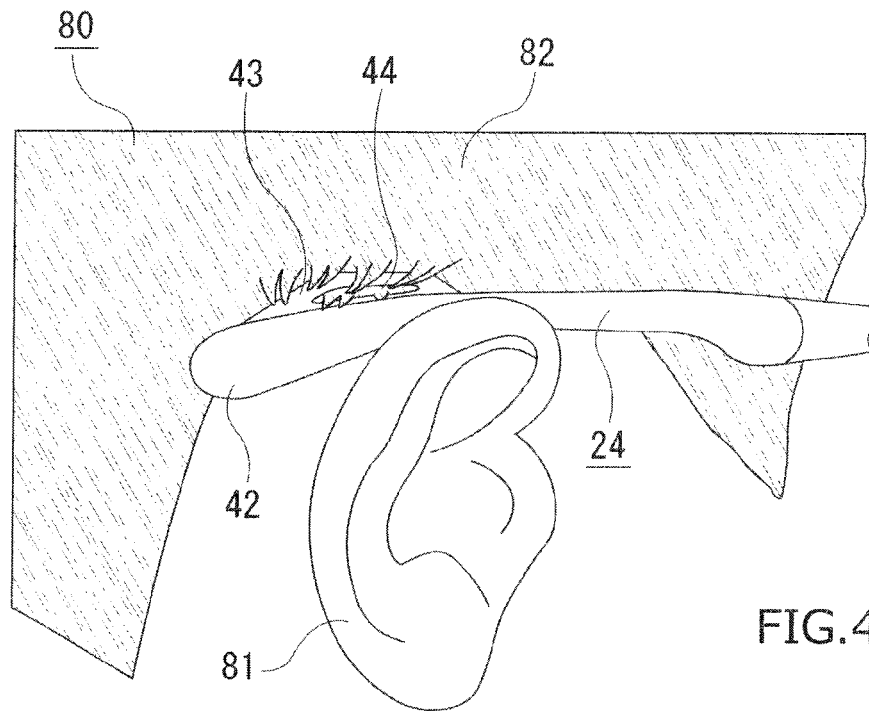
wherein the second end (521) of the mounting part (52) is located forward and downward with respect to the first end (522) of the mounting part (52).

5. The temple (23a, 23b) of Claim 4, wherein the supporting part (25) is formed by a deformable metal member (53) and a resin (54) covering over the metal member (53).

6. A spectacle frame (12) comprising:

a front (21) without nose pads; and
a temple (23a, 23b) of anyone of Claims 1 to 5 connected to the front (21).







EUROPEAN SEARCH REPORT

 Application Number
 EP 19 18 7942

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	JP 2001 201721 A (KATSUKI OPTICAL CO LTD) 27 July 2001 (2001-07-27) * paragraph [0004] - paragraph [0005] * * paragraph [0006]; figure 3 *	1-6	INV. G02C5/00 G02C5/14 G02C3/00
Y	JP 6 343744 B1 (TERAKAWA EITARO) 13 June 2018 (2018-06-13) * paragraph [0006] * * paragraph [0029] - paragraph [0031]; figures 1a,1b * * paragraph [0033] * & JP 2019 139077 A (TERAKAWA EITARO) 22 August 2019 (2019-08-22)	1-6	
A	WO 2011/055541 A1 (TERAKAWA EITARO [JP]) 12 May 2011 (2011-05-12) * paragraph [0029] - paragraph [0034]; figures 6,7,9 * * paragraph [0038] - paragraph [0039] *	2,3	
A	US 2016/266401 A1 (WONG CHAK YUEN [HK]) 15 September 2016 (2016-09-15) * paragraph [0033] *	2,3	TECHNICAL FIELDS SEARCHED (IPC) G02C
A	JP 2016 206389 A (BRIDGE CORPORATION:KK) 8 December 2016 (2016-12-08) * paragraph [0001]; figures 1-3 * * paragraph [0009] * * paragraph [0015] - paragraph [0023] *	1,4-6	
A	WO 2017/179802 A1 (SUH YOUNG WOO [KR]) 19 October 2017 (2017-10-19) * the whole document *	1	
A	US 2006/082723 A1 (JAMIE SHAHROOZ S [US] ET AL) 20 April 2006 (2006-04-20) * the whole document *	1	
		-/--	
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 27 November 2019	Examiner Stadlmeyer, R
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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EUROPEAN SEARCH REPORT

Application Number
EP 19 18 7942

5

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45

50

55

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	US 3 955 885 A (ARONSOHN RICHARD B) 11 May 1976 (1976-05-11) * the whole document *	1	
A	EP 2 233 963 A1 (BRIDGE CORP [JP]) 29 September 2010 (2010-09-29) * the whole document *	1	
A	KR 2013 0113080 A (YU SU IM [KR]) 15 October 2013 (2013-10-15) * the whole document *	1	
A	US 3 832 043 A (USDAN M) 27 August 1974 (1974-08-27) * the whole document *	1	
A	KR 2009 0127247 A (JO SUNG IL [KR]) 10 December 2009 (2009-12-10) * the whole document *	1	
A	US 2017/049625 A1 (LIMMA LORI ANN [US]) 23 February 2017 (2017-02-23) * the whole document *	1	
A	US 6 986 577 B1 (JAMIE SHAHROOZ S [US] ET AL) 17 January 2006 (2006-01-17) * the whole document *	1	
A	JP H08 211338 A (SAKUMA HISANORI) 20 August 1996 (1996-08-20) * the whole document *	1-3	
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 27 November 2019	Examiner Stadlmeyer, R
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 19 18 7942

5

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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27-11-2019

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15

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25

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35

40

45

50

55

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 2001201721 A	27-07-2001	NONE	
JP 6343744 B1	13-06-2018	JP 6343744 B1	13-06-2018
		JP 2019139077 A	22-08-2019
WO 2011055541 A1	12-05-2011	JP 4465691 B1	19-05-2010
		JP 2011099939 A	19-05-2011
		WO 2011055541 A1	12-05-2011
US 2016266401 A1	15-09-2016	CN 105974603 A	28-09-2016
		HK 1224019 A1	11-08-2017
		JP 2016170416 A	23-09-2016
		US 2016266401 A1	15-09-2016
JP 2016206389 A	08-12-2016	JP 6251212 B2	20-12-2017
		JP 2016206389 A	08-12-2016
WO 2017179802 A1	19-10-2017	KR 20170003674 U	25-10-2017
		WO 2017179802 A1	19-10-2017
US 2006082723 A1	20-04-2006	NONE	
US 3955885 A	11-05-1976	NONE	
EP 2233963 A1	29-09-2010	CN 101939688 A	05-01-2011
		EP 2233963 A1	29-09-2010
		HK 1152116 A1	10-01-2014
		JP 5243454 B2	24-07-2013
		JP WO2009090733 A1	26-05-2011
		KR 20100116604 A	01-11-2010
		US 2010283959 A1	11-11-2010
		WO 2009090733 A1	23-07-2009
KR 20130113080 A	15-10-2013	NONE	
US 3832043 A	27-08-1974	NONE	
KR 20090127247 A	10-12-2009	NONE	
US 2017049625 A1	23-02-2017	NONE	
US 6986577 B1	17-01-2006	NONE	
JP H08211338 A	20-08-1996	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- JP 1550931S B [0002]
- JP 1550932S B [0002]